

Appl. No. 10/786,890
Amdt. Dated January 19, 2007
Reply to Office Action of October 19, 2006

Attorney Docket No. 81880.0114
Customer No.: 26021

REMARKS/ARGUMENTS:

Claim 1 is amended. Support for the amendment to claim 1 can be found in Figure 1 and at p. 10, line 25-p. 11, line 1 of Applicant's specification. Claims 1-11 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The present invention relates to a print mask for screen printing used for printing a printing paste onto a wafer so as to form bumps or protrusion electrodes on barrier metal layers provided on the wafer. The present invention includes a method of electronic components by using the print mask, and relates particularly to a method of manufacturing a flip-chip integrated circuit that is mounted on a circuit board by face-down bonding. (Applicant's specification, at p. 1, lines 6-13).

CLAIM REJECTIONS UNDER 35 U.S.C. §102:

Claims 1, 2, and 4-6 stand rejected under 35 U.S.C. §102(b) as being anticipated by Ishiguro Takashi (JP2001-015909). The Applicant respectfully traverses this rejection.

Claim 1, as amended, is as follows:

A print mask used to form bumps on barrier metal layers of a wafer comprising a plurality of perforations, in a plan view, each elongated and disposed in linear arrangement for applying a paste via the perforations onto an object of printing,

wherein each of said perforation includes an edge disposed along the longitudinal direction in a plan view, said edge being inclined with respect to the direction perpendicular to the direction of arranging the perforations.

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At page 2 and 3 of the Office Action, the Office relies on Figures 2 and 6 of Takashi to demonstrate that Takashi teaches a print mask comprising a plurality of elongated perforations, wherein each of "perforation includes an edge disposed along the longitudinal direction," and wherein the edge is "inclined with respect to the direction perpendicular to the direction of arranging the perforations."

The Applicant respectfully disagrees. First, Figures 2, 4, 5 and 6 of Takashi do not show "a print mask" but merely show a substrate (1) on which resin paste is printed through a print mask. Only Figures 3 and 10 show a print mask (31, 61). (Takashi, Description of Drawings)

In addition, the print mask (31, 61) shown in either Figure 3 or 10 does not have an "elongated perforation" but instead has "circular perforations (32, 33, 34, 62)." The Applicant respectfully submits that perhaps the Office believes that the perforations (32, 33, 34, 62) are "elongated" in a depth direction.

In view of the foregoing and in order to expedite the prosecution of the instant application, Applicant amended claim 1 to clarify the differences between the present invention and Takashi.

Applicant respectfully submits that Takashi cannot anticipate or render obvious claim 1, because Takashi fails to teach or suggest "a plurality of perforations, in a plan view, each elongated and disposed in a linear arrangement." In addition, Takashi cannot anticipate or render obvious claim 1, because Takashi fails to teach or suggest "perforation includes an edge disposed along the longitudinal direction in a plan view, said edge being inclined with respect to the direction perpendicular to the direction of arranging the perforations." It would be impossible for circular perforations (32, 33, 34) to be inclined in a plan view.

In light of the foregoing, Applicant respectfully submits that Takashi could not have anticipated or rendered obvious claim 1, because Takashi fails to teach or

suggest each and every claim limitation. Claim 2 depends from claim 1 and cannot be anticipated or rendered obvious for at least the same reasons as claim 1. Withdrawal of this rejection is thus respectfully requested.

Claim 4 is as follows:

A print mask comprising a number of perforations disposed in a single row or a plurality of rows for applying and printing a printing paste via the perforations onto aware so as to form bumps on barrier metal layers provided on the wafer,

wherein the density of arrangement of said perforations is set differently from region to region within the arrangement and the opening area of said perforation is set smaller in the region of an arrangement where the density of arrangement of said perforations is higher.

Applicant respectfully submits that Takashi cannot anticipate or render obvious claim 4, because Takashi fails to teach or suggest "the opening area of said perforation is set smaller in the region of an arrangement where the density of arrangement of said perforations is higher."

As discussed above, Takashi fails to teach or suggest a "print mask" but instead merely shows a substrate (1) on which a resin paste is printed.

In addition, Figure 3 of Takashi shows a print mask (31), which has three perforations (32), (33) and (34), each having a different opening area. The order of the openings are: perforation (34) > perforation (33) > perforation (32). (Takashi, section [0033]). However, there is an area where the density of arrangement of perforation (33) is larger than that of perforation (32). (e.g., Takashi, Figure 3, upper middle portion; perforation (33) is arranged in a higher density than that of perforation (32)).

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In light of the foregoing, Applicant respectfully submits that Takashi could not have anticipated or rendered obvious claim 4, because Takashi fails to teach or suggest each and every claim limitation.

Claims 5 and 6 depend from claim 4 and cannot be anticipated or rendered obvious for at least the same reasons as claim 4. Withdrawal of these rejections is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §103:

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Takashi. The Applicant respectfully traverses this rejection. Claim 3 depends from Claim 1 and therefore, cannot be rendered obvious over Takashi for the reasons discussed above. Withdrawal of this rejection is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4600 to discuss the steps necessary for placing the application in condition for allowance.

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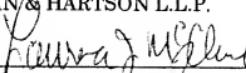
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If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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